Claims

[c1]

1. A DNA molecule isolated from cotton tissue identified as SEQ ID NO:7.

[c2]

2. A primer pair of DNA molecules comprising a sufficient length of contiguous nucleotides of SEQ ID NO:7 or complements thereof wherein a first DNA molecule of the primer pair resides in a transgene insert DNA sequence of SEQ ID NO:7 and a second DNA molecule of the primer pair resides in the cotton genomic DNA sequence of SEQ ID NO:7 and the pair of DNA molecules are useful as DNA nucleotide primers in a DNA amplification method.

[c3]

3. A DNA molecule isolated from cotton tissue identified as SEQ ID NO:8.

[c4]

4. A primer pair of DNA molecules comprising a sufficient length of contiguous nucleotides of SEQ ID NO:8 or complements thereof wherein a first DNA molecule of the primer pair resides in a transgene insert DNA sequence of SEQ ID NO:8 and a second DNA molecule of the primer pair resides in the cotton genomic DNA sequence of SEQ ID NO:8 and the pair of DNA molecules are useful as DNA nucleotide primers in a DNA amplification method.

[c5]

5. A method of detecting the presence of DNA corresponding to the genomic/transgene DNA of cotton event PV-GHGT07(1445) event in a sample, the method comprising:

(a) contacting the sample comprising cotton DNA with a primer pair of claim 2, that when used in a nucleic-acid amplification reaction with DNA from cotton event PV-GHGT07(1445), produces an amplicon that is diagnostic for cotton event PV-GHGT07(1445); and

(b) performing a nucleic acid amplification reaction, thereby producing the amplicon; and

(c) detecting the amplicon.

[c6]

6. An isolated DNA molecule comprising the amplicon produced by the method of claim 5.

[c7]

7. A DNA detection kit specific for genomic/transgene DNA of cotton event PV-GHGT07(1445) and its progeny comprising at least one DNA molecule of sufficient length of contiguous DNA polynucleotides to function in a DNA detection method, that is homologous or complementary to SEQ ID NO:7.

[c8]

8. A method of detecting the presence of DNA corresponding to the genomic/transgene DNA of cotton event PV-GHGT07(1445) event in a sample, the method comprising:

(a) contacting the sample comprising cotton DNA with a primer pair of claim 4, that when used in a nucleic-acid amplification reaction with DNA from cotton event PV-GHGT07(1445), produces an amplicon that is diagnostic for cotton event PV-GHGT07(1445); and

(b) performing a nucleic acid amplification reaction, thereby producing the amplicon; and

(c) detecting the amplicon.

[c9]

9. An isolated DNA molecule comprising the amplicon produced by the method of claim 8.

[c10]

10. A DNA detection kit specific for genomic/transgene DNA of cotton event PV-GHGT07(1445) and its progeny comprising at least one DNA molecule of sufficient length of contiguous DNA polynucleotides to function in a DNA detection method, that is homologous or complementary to SEQ ID NO:8.

[c11]

11. A method of detecting the presence of a genomic/transgene DNA corresponding to the PV-GHGT07(1445) event in a sample, the method comprising:

(a) contacting the sample comprising cotton DNA with a polynucleotide probe that hybridizes under stringent hybridization conditions with DNA from cotton event PV-

GHGT07(1445) and does not hybridize under the stringent hybridization conditions with a non PV-GHGT07(1445) cotton plant DNA; and

(b) subjecting the sample and probe to stringent hybridization conditions;

(c) detecting hybridization of the probe to the DNA.

[c12]

12. An isolated DNA molecule comprising a genomic/transgene DNA junction sequence of cotton event PV-GHGT07(1445) identified as SEQ ID NO:5 or DNA molecules substantially homologous to said DNA molecule or complements thereof.

[c13]

13. An isolated DNA molecule comprising a genomic/transgene DNA junction sequence of cotton event PV-GHGT07(1445) identified as SEQ ID NO:6 or DNA molecules substantially homologous to said DNA molecule or complements thereof.

[c14]

14. A method of breeding a cotton plant comprising a glyphosate tolerant trait that is genetically linked to a complement of a marker nucleic acid, wherein said marker nucleic acid molecule is SEQ ID NO:5 or SEQ ID NO:6 or complements thereof.

[c15]

15. A method of determining the genomic/transgene DNA zygosity of the progeny of cotton Plant PV-GHGT07(1445) comprising:

(a) contacting the sample comprising cotton DNA with a primer set comprising SEQ ID NO:9, SEQ ID NO:11 and SEQ ID NO:12, that when used in a nucleic-acid amplification reaction with genomic DNA from cotton event PV-GHGT07(1445), produces a first amplicon that is diagnostic for cotton event PV-GHGT07(1445); and

(b) performing a nucleic acid amplification reaction, thereby producing the first amplicon; and

(c) detecting the first amplicon; and

(d) contacting the sample comprising cotton DNA with said primer set, that when used in a nucleic-acid amplification reaction with genomic DNA from cotton plants produces a second amplicon comprising the native cotton genomic DNA homologous to the cotton genomic region of a transgene insertion identified as cotton event PV-GHGT07(1445); and

(e) performing a nucleic acid amplification reaction, thereby producing the second amplicon; and

(f) detecting the second amplicon; and

(g) comparing the first and second amplicons in a sample, wherein the presence of both amplicons indicates the sample is heterozygous for the transgene insertion.

[c16]

16. An isolated DNA nucleotide primer sequence comprising SEQ ID NO:9 or its complement.

[c17]

17. An isolated DNA nucleotide primer sequence comprising SEQ ID NO:10 or its complement.

[c18]

18. An isolated DNA nucleotide primer sequence comprising SEQ ID NO:11 or its complement.

[c19]

19. An isolated DNA nucleotide primer sequence comprising SEQ ID NO:12 or its complement.

[c20]

20. An isolated DNA molecule comprising the first amplicon produced by the method of claim 15.

[c21]

21. An isolated DNA molecule comprising the second amplicon produced by the method of claim 15.